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What we have here is a failure to communicate! Improving communication between tertiary to primary care for chronic heart failure patients

S. Shakib,[1,2,3] H. Philpott[1] and R. Clark[1,4]

[1]Department of Clinical Pharmacology and Drug Optimisation Clinic, [2]National Institute of Clinical Studies and [3]Royal Adelaide Hospital, [4]Faculty of Health Sciences, University of South Australia, Adelaide, South Australia, Australia

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Correspondence
Sepehr Shakib, Clinical Pharmacology and Drug Optimisation Clinic, Royal Adelaide Hospital, Level 7, Emergency Block, North Terrace, Adelaide, South Australia, Australia.
Email: sepehr.shakib@health.sa.gov.au

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Abstract

Background: The aims of this study were to determine the documentation of pharmacotherapy optimization goals in the discharge letters of patients with the principal diagnosis of chronic heart failure.
Methods: A retrospective practice audit of 212 patients discharged to the care of their local general practitioner from general medical units of a large tertiary hospital. Details of recommendations regarding ongoing pharmacological and non-pharmacological management were reviewed. The doses of medications on discharge were noted and whether they met current guidelines recommending titration of angiotensin-converting enzyme inhibitors and beta-blockers. Ongoing arrangements for specialist follow up were also reviewed.
Results: The mean age of patients whose letters were reviewed was 78.4 years (standard deviation ± 8.6); 50% were men. Patients had an overall median of six comorbidities and eight regular medications on discharge. Mean length of stay for each admission was 6 days. Discharge letters were posted a median of 4 days after discharge, with 25% not posted at 10 days. No discharge letter was sent in 9.4% (20) of the cases. Only six (2.8%) letters had any recommendations regarding future titration of angiotensin-converting enzyme inhibitors and 6.6% (14) for beta-blockers. Recommendations for future non-pharmacological management, for example, diuretic action plans, regular weight monitoring and exercise plans were not found in the letters in this audit.
Conclusion: Hospital discharge is an opportunity to communicate management plans for treatment optimization effectively, and while this opportunity is spurned, implementation gaps in the management of cardiac failure will probably remain.

Introduction

Chronic heart failure (CHF), which affects more than 300 000 Australians, is a common and serious condition, with a 5-year mortality rate of 50%.[1,2] Fortunately, over the last 10 years, the prognosis has improved and clear survival benefit has been shown with the use of angiotensin-converting enzyme inhibitors (ACEI), beta-blockers and non-pharmacological therapies.[3] However, there continue to be significant gaps between best and actual practice, both in hospital and community settings.[3] CHF patients have a significant rate of readmission, which can be lessened with adequate post-discharge management.[4]

A previous audit by our group has found that more than 90% of eligible patients with CHF were prescribed ACE inhibitors on discharge.[5] In contrast, there were several

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system barriers to the up-titration ACE inhibitors and the addition of beta-blocker therapy identified during the admission.[6–9] These barriers included shorter hospital length of stay, uncertainty regarding drug history and previous medication experiences and the fact that most patients do not have clinically stable heart failure during their inpatient presentation.[8–10] For most CHF patients, hospitalization can be the beginning of medication optimization, which requires continuation after discharge.[7]

Although CHF is a significant proportion of hospital admissions, general practitioners (GPs) manage this condition less frequently.[11] Perceived barriers to the implementation of best practice guidelines for the management of CHF in primary care include inadequate provision of documentation from medical specialists, especially for recently hospitalized patients, as well as a lack of information and awareness about the dosing of ACE inhibitor and beta-blockers.[8,9]

Unfortunately, even with a strong evidence base, only 8–11% of all CHF patients access 'specialized' multidisciplinary CHF management.[6] However, a hospital admission within this group of patients does provide an opportunity for specialist review and follow-on communication to the GP on a recommended treatment plan and future goals. To date, there has been a paucity of published work to show how often this occurs in practice. The aim of this study was to determine the level of documentation of management plans and pharmacotherapy treatment goals, in CHF patients discharged from a tertiary referral hospital to the care of their GP, who would not be followed up by a specialist heart failure programme.

Methods

A retrospective practice audit was conducted within the general medical units of the Royal Adelaide Hospital (RAH), a 650-bed tertiary referral institution located in the city of Adelaide, South Australia.

Inclusion criteria

All patients discharged home to metropolitan Adelaide (post codes 5000–5199) with International Classification of Diseases-10 codes relating to a principal diagnosis of CHF including 'congestive heart failure', 'cardiomyopathy unspecified', 'ischaemic cardiomyopathy', 'left ventricular failure', 'dilated cardiomyopathy' and 'acute pulmonary oedema' in the 12-month period commencing 1 January 2005 to 1 January 2006. These codes have previously been shown to have a high specificity for the Framingham criteria diagnosis of CHF.[5] During this period there was no specialized heart failure programme available at the RAH.

Exclusion criteria

Patients discharged to nursing homes, other hospitals or hospices, those deemed to be palliative for reasons other than cardiac failure and patients with severe dementia were excluded.

As part of the standard patient care process, the hospital posts a discharge summary, including a medication list to the patient's GP, which is available electronically. Each of these electronic summaries was reviewed by the research team to assess: the dosage of ACE inhibitor, beta-blocker and diuretic medication compared with the recommended dosages, the presence of recommendations for ongoing pharmacological and non-pharmacological management, arrangements for specialist follow up, total number of comorbidities and regular medications prescribed on discharge.[12–14] For each medication, documentation of contraindications was also sought within the electronic discharge summary. For ACE inhibitors, these included the presence of bilateral renal artery stenosis, severe renal failure, hypotension, history of angioedema or previous documented intolerance. For beta-blockers these included hypotension, severe bradycardia or heart block, reversible airway disease or severe chronic obstructive airway disease. Auditmaker (The Australian Centre for Evidence-Based Clinical Practice, Adelaide, South Australia) was used as the clinical audit tool.[15]

In our assessment of the prescribed medications, we took a generous approach towards the choice of drugs in each class. Beta-blockers not specifically indicated for CHF (atenolol and standard formulation of metoprolol) were deemed to be acceptable, as many patients have heart failure with preserved systolic function and these agents may be used for rate control and improved diastolic filling.[14] As the discharge summaries did not have details of certain clinical parameters, which may have limited drug dosage maximization, for example, blood pressure, heart rate, divided the drug doses as being less than half of the maximal dosage, which are usually starting doses, and more than or equal to half of maximal dosage, suggesting that some dosage maximization had already occurred.

Analysis

Data analysis and statistical measures were carried out using Microsoft Excel 2003 and Microsoft Access 2003 (Microsoft Corporation, Seattle, Washington, USA). Descriptive statistics describing demographics and audit outcomes are presented as proportions or means, medians and standard derivations with 95% confidence intervals.

Results

During the study period between 1 January 2005 and 1 January 2006, there were 351 admissions with the principal diagnosis of CHF. Of these there were 27 deaths during admission, 31 patients were discharged to other hospitals and 55 to residential care facilities. Of the remaining 238 patients, 22 involved discharges outside of the metropolitan area and 4 patients had either advanced dementia or were palliative resulting in a total of 212 discharges, which were reviewed. The characteristics of these patients are presented in Table 1. Patients were elderly comorbid group, which was prescribed a median of eight regular medications on discharge. Most patients (60%) were followed up exclusively by their GPs with no further specialist appointments. Discharge letters were sent a median of 4 days after discharge with 25% of GPs being sent the information 10 or more days after discharge. No discharge letter was sent in 9.4% (20) of cases.

As can be seen from Table 2 only six of the 212 discharge letters (2.8%) had documented recommendations regarding future titration of ACE inhibitors. If the patients who may not have benefited from up-titration are excluded from this group (i.e. those with documented contraindication or those already prescribed greater than half the recommended maximum dosage) then approximately 5.6% (eight) patients had a documented dosage recommendation in their discharge letter. Similarly, only 6.6% (14) of all letters had information regarding the future aims of the beta-blocker therapy (Table 2). Again, if patients who may not have benefited from up-titration of their beta-blockers are excluded from this group, notation of future management was recorded in only 10% of discharge letters (Table 2). Only six letters (2.8%) had information on future dose alterations of diuretics. Recommendations for non-pharmacological management, for example, diuretic action plans, regular weight monitoring and exercise plans were not found in any letter reviewed in this audit.[16]

Discussion

This review of discharge communication is, to the best of our knowledge only the second project to examine this issue specifically in relation to CHF.

A similar study, carried out by Raval *et al.* also stressed significant deficiencies in discharge documentation.[17] Van Walraven *et al.* found that the provision of a discharge letter decreased the rate of readmission among patients admitted to hospital with acute medical illnesses.[18] Inadequate documentation has been

Table 1 Characteristics of patients reviewed

Characteristics	Mean, $n = 212$
Age in years (mean and SD)	78.4 years (SD ± 8.6)
Sex *n* (%)	
Male	105 (49.5)
Female	107 (50.5)
Length of stay – median (days)	6 days
Mean no. comorbidities	5.43 (SD ± 2.4)
No. days from discharge to posting of information to GP	7.75 (SD ± 12.03), median 4 days
Discharge information sent >10 days after discharge (%)	53 (25.0)

GP, general practitioner; SD, standard deviation.

Table 2 Documentation of ACE inhibitor/angiotensin II antagonist and beta-blocker prescription and dosage in discharge summary/letters

Documentation of ACE inhibitor/ angiotensin II antagonist prescription and dosage within discharge summary letters	*n* (%) (95%CI), $n = 212$
Total prescribed ACEI 156 (73.5%)	
High dose (dosage at ≥50% of maximum dose†)	55 (25.9) (20–32)
Low dose with recommendations for up-titration (<50% of maximum dosage)	8 (3.8) (2–7)
Low dose without recommendation for up-titration (<50% of maximum dosage)	93 (43.9) (37–51)
Drug not prescribed with documented contraindication†	13 (6.1) (4–10)
Drug not prescribed without explanation	23 (10.8) (7–16)
Discharge summary letter never written	20 (9.4) (6–14)
Documentation of beta-blocker prescription and dosage in discharge letters	
Total prescribed beta-blocker 93 (43.6%)	
High dose (dosage at ≥50% of maximum dose†)	33 (16.0) (11–21)
Low dose with recommendations for up-titration (<50% dosage)	7 (3.3) (2–7)
Low dose without recommendations for up-titration (<50% of maximum dosage)	53 (25.0) (19–31)
Drug not prescribed with documented contraindication†	32 (15.1) (11–20)
Not prescribed with recommendation for future prescription	7 (3.3) (2–7)
Drug not prescribed without explanation	54 (25.5) (20–31)
Letter not written	20 (9.4) (6–14)
Other, for example, prescribed sotalol for arrhythmia	5 (2.4) (1–5)

†No dosage recommendation required. 95%CI, ninety-five per cent confidence interval; ACEI, angiotensin-converting enzyme inhibitors.

identified as a barrier to the implementation of best practice guidelines for CHF[5] and as ideal management of CHF reduces mortality and morbidity,[3] it is possible that improving discharge communication could improve outcomes in patients with CHF.[15] Overall, our review showed that the quality of the documentation of recommendations for pharmacological and non-pharmacological management was very poor. In particular, very few letters (<15%) outlined a plan of management for the future dose titration of any of the heart failure medications. The prescription of ACE inhibitors and beta-blockers, both of which have proven benefit in reducing heart failure mortality and morbidity, was not in keeping with the current best practice guidelines[13] and 70% of patients were receiving an ACE inhibitor and 50% were receiving a beta-blocker. This rate of prescription was, however, similar to those reported from the CASE study (19) (ACEI 58% and beta-blocker 14%) and The EuroHeart Survey (ACEI 61.8% and beta-blocker 36.9%) (14).

Given the fact that patients were admitted with decompensated heart failure (in the context of numerous other comorbidities), this observation is perhaps not surprising. However, given that most were followed up by their GPs and advice regarding this optimization was not communicated in the discharge letter, it is unlikely that this implementation gap will be bridged. Furthermore, the discharge letter is usually the only routine tool for communication with GPs. As CHF is a common condition within medical services of a large hospitals, but constitutes only a small percentage (2.9%) of patients seen by GPs,[1,19] it may be unreasonable to expect GPs to initiate optimal CHF management without specialist guidance.[9,13,19] The discharge letter may be a small window of opportunity for education on the future treatment and drug optimization requirements in this group of complex patients.[20]

The reasons for our findings are probably multifactorial and their detailed investigation is beyond the scope of this paper. At our institution, the discharge summary is completed by the intern, who is the most junior member of the treating team, and the one who is least likely to appreciate the ongoing management requirements of the patient. Our institution also does not have a chronic disease management service and hence the chronic management of the patients is frequently not considered during their inpatient management.

In light of our results we would recommend that patients with chronic diseases, such as CHF, who have acute hospital admissions and specialist contact punctuating their disease journey, have standardized recommendations for future management as an obligatory component of their discharge planning process.[21]

Limitations

This review was conducted in only one institution and reviewed information only from discharge letters. The possible reasons why the discharge letters failed to convey adequate documentation are numerous and we could not assess other communications such as telephone contact. The maximal doses of the medications for each patient should ideally have been assessed by reviewing the patient's case notes to assess factors that would have limited further dose increases. As this information was not available in the discharge letters, we arbitrarily chose a cut-off of 50% of the maximum recommended dosage for each drug, to indicate that an adequate dose had been prescribed. It is possible that this approach overestimated the number of patients who would have benefited from recommendations regarding dosage increases in their discharge letter. However, given the very poor level of documentation of dosage recommendation, this is unlikely to have changed the overall conclusion of the study.

The strengths of the study were that the audit could evaluate a large number of discharge letters for an entire year across five different medical units of a large metropolitan hospital, hence sampling bias was eliminated.

Conclusion

The findings of this study suggest that even when there are standardized approaches for discharge communication, for example, software for electronic discharge letters, important management and treatment goals are not included. This would suggest that other structured approaches are required to implement a more satisfactory transition for patients from the hospital to the community, especially for patients with chronic diseases. Hospital discharge is an opportunity to communicate effectively a management plan for treatment optimization to the patient's principal clinician, and although this opportunity is spurned, implementation gaps in the management of CHF will probably remain.

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